Moving from the margins: The role of narrative and metaphor in health literacy

Journal Item

Moving from the margins – the role of narrative and metaphor in health literacy

Dr. Janine Talley

The Open University

Walton Hall

Milton Keynes

MK7 6AA

UK

Tel: 0161 998 7272

E-mail : j.talley@open.ac.uk

(This E-mail address can be published.)

Abstract

Narrative and metaphor are now recognised to be central to thought, language and communication, and consequently have relevance to discourse and action in many areas including health and wellbeing.[1] In this paper, narrative and metaphor are examined in relation to areas relevant to health literacy. The ways in which narrative and metaphor relate to dimensions of health literacy identified by Zarcadoolas, Pleasant and Greer,[2] fundamental, scientific, cultural and civic are analysed. The work aims to provide a rationale for greater incorporation of narrative and metaphor in discussions and activities related to health literacy.

Key Words

Health communication; Health literacy; Health promotion; Metaphor; Narration; Public health.

Introduction

The concept of health literacy emerged several decades ago as a response to recognition that certain kinds of knowledge, understanding and skills are associated with good health. The ideas encompassed by the term are exemplified in definitions such as the following

from the World Health Organisation (WHO)[3] 'Health literacy represents the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health'. Health literacy has attracted increasing interest from academics, researchers and practitioners in recent years, most importantly because low health literacy has been associated with poorer health and wellbeing outcomes. These include, problems in accessing and using health services, using medications and managing personal health.[2] Kickbusch, Pelikan, Apfel and Tsouros[4] report association with riskier behaviour, poorer health, less self-management, and more hospitalization and costs. Concerns are so great as to support its establishment as a pressing topic by the WHO,[4] and in policies across the globe such as the Healthy People 2020 initiative of the United States Department of Health and Human Services.[5] In this paper, the role of narrative and metaphor in relation to the elements of health literacy will be discussed, and the case argued for a more central place for them in the discourse and practice of the field.

Narrative, metaphor and health literacy

Narrative and metaphor have traditionally been viewed as merely linguistic devices employed in the communication of ideas.[1] Whilst they are mentioned in this capacity in examples of key texts on health literacy, for example by Zarcadoolas, Pleasant and Greer[2] and Osborne,[6] they have not attracted significant attention as having any more fundamental importance, or central position in this field. However, as a result of recent work in areas such as cognitive psychology and cognitive linguistics, it might be argued that this position needs to be reviewed. In wider thought and discourse about how we engage with the world, narrative and metaphor have moved to centre stage.

The role of narrative and metaphor as fundamental at the level of conceptual processing mechanisms and the making of meaning is an idea that has been developing over several decades. Narrative and metaphor are now seen as integral to cognition and the products of cognition including communication and action. The work of Bruner[7,8] in particular has contributed to the changing awareness of the role of narrative, which he proposed as being one of the two main strategies for understanding the world (alongside logical-scientific thinking); arguing that it is through narrative that reality is constructed. As information is integrated into a sequence and running storyline, narrative is created. Arguments are similarly made for metaphor as an organizing principle of thought. Ortony[9] and Lakoff and Johnson[10,11] support the view that metaphor is central to cognition; this being achieved through the connections it enable between new and existing domains of thought and the development of conceptual frames. Lakoff[12] indeed argues that most of our conceptual system is metaphorical.

Generally with regard to discourse and practice in health and wellbeing, this role in cognition and its products, is reflected in the ubiquity of narrative and metaphor which has been described in previous work.[13] More specifically in relation to health literacy, this knowledge has important consequences which will be discussed in the following sections. To help structure this, the multidimensional model of health literacy developed by Zarcadoolas, Pleasant and Greer[2] will be used. This model is structured around the four core domains of fundamental literacy, scientific literacy, civic literacy and cultural literacy. Key general points of relevance will be integrated into these areas of discussion.

Fundamental literacy

The basic ability to read, write, speak and work with numbers are key elements of fundamental literacy, and are foundations for health literacy.[2] Although, variations in literacy skills are acknowledged and can be due to a range of factors,[2] associations that have been reported between competence in literacy and competence in both metaphor[14] and narrative[15] are significant to note. Foremost, because the relationship between narrative and metaphor and literacy can be argued to be more than a matter of these linguistic devices arising from literacy; but as devices central to the development of literacy.

The role of metaphor in language learning has attracted particular interest from the field of second language learning, since evidence has been emerging on the importance of competence in metaphor to cognitive fluency and linguistic competence. This has illustrated some key general issues of interest. Research described by Littlemore and Lowe[14] and Doiz and Elizari [16] for example, has found that people may be capable of learning and be familiar with words, but still have difficulty engaging with text. Examination of the problem has led to the conclusion that the issue lies significantly with metaphoric competence difficulties. Metaphoric competence specifically referring to areas such as knowledge of and ability to use metaphor, as well as the skills needed to work effectively with metaphor.[14,17] Littlemore[18] indeed argues the need for defining a new intelligence - metaphorical intelligence, incorporating cognitive processes such as associative fluency, analogical reasoning and image formation. Similarly important to literacy is developing what Nussbaum[19] describes as narrative imagination ‘the ability to be an intelligent reader of another person's story' (p 11) and Charon[20] describes as narrative competence - ‘the ability to acknowledge, absorb, interpret, and act on the stories and plights of others ‘ (p 1897).

Charon[21] identifies narrative competence as requiring skills in working with textual elements including narrative structure, perspectives, metaphors and allusions as well as employing creative and affective skills. The development of metaphorical literacy has been deemed as sufficiently important to warrant the suggestion by Higgins[22] it should be included in the general educational curriculum. In light of the prevalence of metaphor in many dimensions of health and wellbeing, arguments such as these might similarly be extended to a metaphorical dimension to education for health literacy for both lay people and professionals. Charon[21] establishes the significance of narrative competence for effective outcomes in healthcare contexts. Thus, it may be argued that to be competent in literacy and health literacy includes having appropriate competence in both narrative and metaphor.

An example such as pain powerfully illustrates how narrative and metaphor are central to thought, discourse and practice in health. It is acknowledged that articulating abstract concepts and experiences about our bodies, such as pain, can be difficult to achieve without turning to metaphor. As Bourke[23] suggests, metaphors can bring interior sensations of the body and mind into a knowable external world, where they can be communicated and processed so that meaning can be created. It is well recognized that the subjective experience of pain is often vividly described in metaphorical terms.[24] So it may be described like the stabbing of knives or needles, or burning or personified in representations as other to the self. Similarly, particular narratives are characteristic of communications by people in pain.[25]

Such is the power of these devices, that they have been harnessed by the Noi Group in Australia to develop innovative approaches to explaining and managing pain,[26] and in medical tools such as the McGill pain questionnaire,[27] which is one of the most widely used means to evaluate and monitor pain as well as determine the effectiveness of interventions to treat it. Despite this, understanding of and competence in narrative and metaphor are often taken for granted or insufficiently examined. Harai and Legge[28] for example, raise concerns about the levels of literacy and vocabulary needed to complete the McGill questionnaire. The issue of metaphorical competence is particularly relevant to understanding and interpretation of descriptors used in the questionnaire, such as pricking, stabbing, boring, flashing and shooting.

The extent to which metaphors and narratives are common to individuals and groups is important to examine. Lakoff [12] and Zaltman and Zaltman [29] and other authors provide support for the existence of some cross cutting or universal metaphors. Zaltman and Zaltman [29] go as far as to conclude that there are a relatively small number of underpinning deep metaphors common to all people and cutting across defining social variables such as age, gender and nationality. They list seven such deep metaphors - balance, transformation, journey, container, connection, resource and control. In a similar vein common underlying archetypal or universal narratives and/or foundational elements to narratives have been proposed. For example, narratives of the hero's journey.[30] Brannigan[31] summarises the accepted elements of narrative schemas as; introduction of setting and characters, explanation of a state of affairs, initiating event, emotional response or statement of a goal by the protagonist, complicating actions, outcome, reactions to the outcome. The practical application of universal metaphors and narratives to improve health communications and

outcomes has been recognized by Craig Lefebvre[32] who includes metaphors, narratives and archetypes as ways to gain insight as part of social marketing activity to promote health, and by Zaltman and Zaltman[29] in their work on consumer insight and social marketing.

However, Yu's[33] summary of evidence, shows that while some metaphors may be universal, others may be only widespread or culture specific. Work in the field of second language learning demonstrates less straightforward use and application across boundaries of metaphor use. Differences have, for example, been demonstrated between cultures and countries in the use of frozen (single linguistic units common in native language), and novel metaphors (ideas combined in new or unusual ways).[34] As Hide, Bourke and Mangion's[25] work on pain illustrates, expression may be influenced by many factors including temporal ones. A description of pain as being like 'a hundred windmills [...] turning round in my head' (p 2) is a description specific to certain times and places, and unrecognisable to contemporary discourse. Moreover, metaphoric differences and competence may also, be related to inherent individual differences as well as cultural or other issues. Littlemore[34] and Pollio, Barlow, Fine and Pollio[35] report individual diversity in the ability to produce and comprehend figurative language such as metaphor, while Botting[15] notes the importance influence of individual differences in narrative style and communicative competence.

Basic capabilities in working with numbers as well specific mathematical concepts such as probability and risk are also an important part of health literacy,[2] and areas where narrative and metaphor can be demonstrated to be important. Lakoff and Nunez[36] for example, describe the general origins of mathematical understanding through metaphor and its basis in embodied cognition. While a range of authors have similarly considered the narrative

basis of mathematical concepts such as probability and risk which are particularly important to health communication and literacy. Slovic et al[37] describe how comprehension of risk arises from two systems, the analytic system and the more commonly employed experiential system. While the former involves processes such as algorithms and logic, the latter involves images, associations and emotions such that reality is encoded in concrete images, metaphors, and narratives. Perceptions of risk have been found to be more accurately estimated when information is presented in terms of narratives rather than statistics. Looking to ways to harness this knowledge for practical purposes, authors such as Spiegelhalter demonstrate how metaphor and narrative enables better understanding of such concepts, through innovations such as microlives[38] and multiple possible futures.[39]

Causality is also an area important to health discourse. As Sloman and Lagnado[40] note, when thinking about causality, we care both about general as well as singular associations. So for example, does asbestos exposure cause cancer and did Fred's exposure to asbestos cause his cancer? How people think about such causal inferences has attracted increasing attention. Sloman and Lagnado[40] describe how 'human causal inference involves the construction of narratives that unfold over time and determine the focus of attention, narratives that reflect knowledge of the specific mechanisms that drive effects' (p 236). They also summarise how inference involves the engagement of mechanisms, narratives and mental simulations, and how narrative thought is particularly evident where there are multiple actors. It is reasonable to extrapolate from this to a narrative underpinning for the cognition of multifactorial causality in health. Understanding the narrative basis for causal thinking has benefits also in understanding areas where there are problems and confusion. Abbott[41] for example, highlights ways in which narrative thinking can limit understanding of

complex causal links and complex systems, since we seek to identify an origin of control in situations where there may not be one. Notable also is understanding the diversity of sources from which narrative is derived It is argued that lay knowledge of causation is derived not just from biomedical sources, but also from cultural, social and experiential sources, organized into complex causal networks.[42]

Looking more broadly, Steen's[43] general framework for mapping the manifestations of metaphorical cognition provides a useful tool for recognising metaphor and narrative as manifest in a range of dimensions - semiotic, psychological and social. From a semiotic perspective, narrative and metaphorical signs appear in a range of single or combined modalities, including spoken and written language, music and non-verbal sounds, static and moving visual images and actions (enacted, mimetic).[44] Furthermore, what is described as the nexus of narrative, metaphor and mind can be located across many media and contexts, including print texts, face-to-face interactions, cinema, radio news broadcasts, computer-mediated virtual environments, storytelling media, advertising, political cartoons, comics, film, songs, and oral communication.[45] As health literacy spans all of these areas, so likewise should narrative and metaphor be considered in these areas.

Scientific literacy

The domain of scientific literacy[2] concerns the knowledge, understanding and skills to engage with science and technology. Narrative and metaphor again can be argued to be central to these areas in a range of ways, including forming part of basic cognition. An important health related concept such as pressure can be used to illustrate this point. As the basis for aspects of bodily function such as such as blood pressure and the experience of

mental stress it can be shown at the most basic cognitive level to be underpinned by narrative and metaphor through theories of embodied cognition and schema (organising cognitive frameworks). The concept of pressure is associated with a number of cognitive schema including container and force. Gibbs[46] describes how our experience of the body as a container, where things are held and /or come in and out generates a mental image schema for containment, encompassing the body and its relationship to things external and internal to it. Alongside this, a further schema such as force enables thinking about things acting within or onto the container of the body. Johnson[47] describes several schemas enabling force to have properties including causal linkage, interaction, directionality, motion, source, target and intensity. So, we might see how blood pressure can be conceptualised and expressed in language; as a force in the body as a whole, or part of it (blood vessels), and have qualities (such as high or low). Similarly stress can be understood in terms of such a schema. When we are stressed we are under pressure, and that pressure has a direction in that we are depressed, pressed down on, or things get us down. Whilst there is some debate over the association between language and cognition[48] Tomkins and Lawley[49] support the view that the words we use reveal the metaphorical basis of our conceptual thinking. This includes the wide range of verbs which they argue indicate the engagement of force schema.

The language of pressure furthermore, highlights an important idea, that our cognition is embodied, in that our cognitive structures are inextricably linked to our experience of our bodies and the world around us.[46] Embodied cognition in the form of image schemas for abstract ideas[47] are reflected in language and other manifestations of cognition, and since these schemas arise from all forms of perception (not just visual), Tompkins and Lawley[49]

describe them more specifically as embodied schema. A wide range of such schemas are described by authors such as Gibbs,[50] Johnson,[47] Lakoff,[51] and Rohrer.[52] According to Littlemore and Low,[14] the conceptual system underlying a language may be conceived as a bank of thousands of stored conceptual metaphors, that are largely unconscious and drawn from our embodied experience.[49]

Research by Schuster, Beune and Stronks[52] shows the way in which people's metaphorical understandings can also, however, draw on personal experience. So an engineer is described who understands blood pressure in terms of hydraulic pump mechanisms familiar to him. Work by Ritscher, Lincoln, and Grotzer[54] shows also that education as well as experience contribute to diverse conceptualisations of scientific concepts such as pressure. Examples such as these point to the need to consider carefully the extent to which conceptual understandings reflected in metaphorical language are shared. A term such as pressure may mean different things to different people and this can be a source of confusion in communications. As illustrated by Nelson,[55] patients may be confused about relationships between concepts such as blood pressure and pulse rate. Similarly, emotional pressure and blood pressure may be closely or causally linked in people's thinking[53] or confused with each other.

Beyond basic cognitive consideration, narrative and metaphor are relevant to discourse and culture in health contexts. The frequent use of metaphors by health professionals to explain scientific concepts is notable, and as Reisfield and Wilson[56] observe can offer effective and efficient communication tools for complex concepts in areas such as biology. Schustera, Beune and Stronks[53] usefully analyse metaphor in relation to hypertension and

cardiovascular disease, illustrating the importance of considering the benefits and limitations of using devices such as metaphors and narratives, including cultural aspects. Banks and Thompson[57] explore the complex ways in which metaphors are associated with understanding and behaviour in health and illness, highlighting that metaphors are important but not the only source of influence in everyday health decisions.

Butler's[58] comments on the nervous system particularly strikingly illustrate how these devices are sometimes helpful and sometimes not. He describes how the idea that the nervous system is like a telephone system, has led to ineffective interventions where nerves are cut to relieve pain, and how comparing the nervous system to a computer is argued to have held back progress in understanding and treating disorders related to the nervous system since it fails to represent important characteristics such as neural plasticity.

Analyses of metaphor and narrative in health related discourse, have shown how this is shaped by the medical model and its scientific foundation in the western world,[53] and how the particular discourses of biomilitarism and bioinformationism have grown to dominate modern biomedicine.[59]War has been described as the primary metaphor of conventional western medicine,[60,61] and the language of war is evident in everyday communications. For example, when we speak about fighting a cold, or battling ill health, about developing pharmaceutical magic bullets, and in media coverage, where wars are waged against obesity[62] or the Ebola virus.[63] Although largely implicit and unrecognised in practice, the use of military narratives and metaphors has been explored by a range of authors including Sontag[64] and Annas,[65] who highlight the significant power these hidden devices have to

influence issues from stigma, to perceptions of and engagement with policy. Montgomery [59] powerfully describes how military language and imagery can be beneficial in highlighting strategies for research and treatment. For individuals, the idea of fighting a battle can give people the strength to carry on in the face of difficult situations. It can, however, be problematic and lead to relationships with our bodies and actions which are not beneficial to health. So for example, positioning ill health and disease as other to a person, imbuing it with characteristics of opposition and malign intent towards us, can invoking fear, hostility and defensive reactions towards the natural processes of an organism within its context.[59] As Khullar[66] notes, if we lose the battle against illness, have we failed and are we to blame for not having fought hard enough? A report critiquing the war metaphor in medicine and examining the links between the microbial world, human health and the ecosystem has been released by the ' Reimagining Resistance Group'.[67] The report publicises the call from microbiologists to end the war metaphor, since it does not represent the complex relationships between humans and the microbiological world, and may be playing a contributory role in difficulties managing the serious global problem of antibiotic resistance.

The bioinformational frame[59] similarly has reported benefits and drawbacks. Drawing on ideas related to computing, the body is no longer a battlefield but like a machine. Though perhaps more apparently benign, this nevertheless raises significant issues. Mattingly [68] provides insightful analysis of the machine metaphor, showing that it can have limits to the point of absurdity as well as having purpose in enabling understanding and capturing important aspects of the experience of illness. To what extent might describing our bodies like an old car be bad, versus an old car being something we love and care for? The body

may be relegated to a mere piece of technology with implications for surveillance and interventions.

Civic literacy

The third dimension of health literacy – civic literacy [2] concerns the knowledge, understanding and skills that enable citizens to engage with relevant aspects of public life including the ability to find and assess information, undertake advocacy roles and understand and engage in wider social actions related to health. Narrative and metaphor can be shown to be central to thinking, communication and action in this area too. Work has shown the large extent to which everyday discourse in areas such as public policy about health and healthcare are framed in terms of these devices. Annas[65] describes the pervasive use of military, market and ecological metaphors, and their significance to understanding and action. Other authors have explored the role of narrative and metaphor in public discourse and policy around specific topics such as obesity,[69] and food and fitness.[70] Bales and Gilliam [71] describe how the way stories are presented in the media influences social learning, and there are a range of reports showing how public support for policies is influenced by the narratives and metaphors people have about an issue.[69, 72]

A particularly notable application of narrative and metaphor is in the upstream river story used in the health improvement field. The narrative attributed to Zola in work by McKinlay, [73] describes healthcare as traditionally concerned with rescuing people from a river rather than looking up stream to see why they are falling in. Drawing on this, the concept of upstream preventive action versus downstream treatment has become a central part of

healthcare culture, underpinning professional approaches to important areas such as addressing the social determinants of health. However, thinking upstream is not just relevant to professional discourse. Engaging the public in recognising that health is determined by a wide range of social factors has been acknowledged as essential to gaining support and success in policy change[72], and this requires a shift in thinking, in which narrative and metaphor can play a key role.[72] Attempts are now being made for example, to use upstream thinking to engage a wide variety of stakeholders in the cause of improved health, such as the Upstream project[74] in Canada.

In looking at the subject of community health and social determinants, Manuel and Gilliam [75] conclude that 'a well-framed community health discourse can succeed in engaging the public in thinking about (and supporting) systems-level policy reforms' (p 2). The centrality of narrative and metaphor to public engagement, underpins the model of Strategic Frame Analysis[76] which has been used to explore ways of bringing about change across a range of social issues including health and wellbeing. This approach is founded on changing the public conversation to advance collective and systemic solutions.

Metaphor and narrative have been notably influential in progressing epidemiological thinking. These include ways to think about complex issues such as non-linear and interacting influences on health over the life course, including the incorporation of structural factors. Examples include the flowing river metaphor of Glass and McAttee,[77] Susser and Susser's Chinese boxes metaphor[78] and Krieger's[79]ecosocial model. Some of the strengths and limitations of these conceptual frameworks have been considered by Coughlin.[80]

There is scope for considerably greater harnessing of metaphor and narrative in ways such as those discussed here, particularly for engaging the public in health issues. As Nussbaum[19] argues, narrative imagination is crucial to the work of effective citizenship.

Cultural literacy

Zarcadoolas, Pleasant and Greer[2], draw on Kreps and Kunimoto to describe cultural literacy as 'abilities to recognise, understand and use the collective beliefs, customs, worldview and social identity of diverse individuals to interpret and act on information' (p 57). They describe culture as 'the shared and dynamic characteristics of a group of people, which may include language, patterns of behaviour, beliefs, customs, traditions, and other modes of expression' (p 64). Amongst those factors influencing competence in narrative and metaphor and health literacy are cultural ones. The nature of these devices as culturally situated and culturally mediated is supported by Yu's[33] analysis showing that conceptual and health related metaphors are embodied but are mediated by the interaction of body and culture, and Dutta's[81] work exemplifying how narratives of health are culturally situated. Ibba[82] and Littlemore and Lowe[14] provide argument for cultural differences in the expression of metaphors, even if not in the conceptual processes, and Deignan[83] reports that different languages may use different metaphors to talk about the same topic.

Some particularly important cultural differences in the metaphorical frameworks through which health and illness are viewed have been explored by Gwyn.[84] The metaphor of war used in western medicine which was discussed previously, contrasts for example, with the metaphor of balance in traditional Chinese medicine.[61] Similarly, the view of the body as a

machine in conventional western medicine contrasts with the view of the body as an energetic system in traditional Chinese medicine. Illness thus becomes a mechanical breakdown or invader rather than an imbalance, and curing illness becomes a fight rather than a restoration of balance.[84] As Schuster, Beune and Stronks[53] note in their study of metaphors and hypertension, 'because metaphors vary from culture to culture, it is important to know the metaphors different ethnic groups use to give meaning to their hypertension before they can be employed in multicultural healthcare interactions' (p 598). These issues have significant implications for health communications, suggesting careful consideration needs to be given to what meaning people make of the metaphors and narratives used, and how health information is framed for a particular audience. If not considered carefully, metaphors and narratives may exclude, alienate, marginalise and disenfranchise.

As both cultural entities and culturally loaded, [85, 86] metaphors and narratives are political and associated with issues of power, hegemony and ideology. As Dutta[81] notes, 'those who have access to power also determine the stories that circulate within the discursive space of the culture' (p111). For example, the dominance of the narratives and metaphors of biomedicine can be argued to privilege those who understand them and ideas associated with them such as a mechanical concept of the body, self-reliance and individualism, marginalising and excluding alternative perspectives on health and healing.[81] Halliday and Martin[87] describe how the language of science 'sets apart those who understand it and shields them from those who do not' (p21). The river metaphor[73] previously discussed represents power as being in the hands of the healthcare professional as the rescuer, and the lay person as the powerless recipient of intervention. However, emancipatory power

also exists in these devices, through achieving recognition of their power and resisting and recreating them.[81]

Moreover, the concept of gender is relevant to all aspects of health literacy, and is determined by cultural as well as biological and social factors.[88.]The gendered nature of narratives and metaphors in health and wellbeing can be observed in a wide range of modalities. The body as machine is an example frequently associated with masculinity, as illustrated by texts such as the Man Manual[89] and health MOT's designed to appeal to men.[13] In terms of empirical research, Campbell and Longhurst[90] for example generated data showing women are more likely to frame their experiences of the mental health condition of OCD as a journey, whereas men frame them as a battle.

A further cultural divide is that between professional and lay worlds, As Stewart[91] notes in considering pain, there is compelling evidence that clinicians and patients speak different metaphoric languages. Health professionals and lay people could be perceived as inhabiting separate worlds in terms of history, culture and language. The lay experience of health and healthcare can be akin to entering into a foreign land. This may be exemplified by the emergence of the field of health navigation which Rein[92] defines as 'the process (es) by which patients and/or their health caregivers move into and through the multiple parts of the health care enterprise in order to gain access to and use its services in a manner that maximizes the likelihood of gaining the positive health outcomes available through those services' (p 2). Kickbusch, Wait and Maag[93] describe health literacy itself in terms of a journey - as a tool for navigating the journey of health and health care.

The conceptualisation of the body as machine referred to earlier, is one of the most commonly encountered health related metaphors. As Schuster, Beune and Stronks[53] note, 'Over the years, the construction of human beings, their bodies and organs as machines or parts of machines have become part of scientific discourses, socially shared vocabularies, cultural domains and SF-fantasies about human beings' (p 592). The origins of this metaphor extend far back, to the scientific revolution and Cartesian dualism[53] reflecting the way in which narrative and metaphor are shaped by (and shape) social and historical context. Examining this metaphor from a cultural perspective, Dutta[81] argues the case for seeing the machine body not as a neutral or inherently universal conceptualisation, but as strongly tied to context and issues of politics, power and medicalisation. So our machine bodies function to serve the aims of society, requiring repairs and management by others (such as doctors) authorised and professionally qualified to do so.

Campbell's[30] seminal work on the cultural monomyth of the hero's journey has shown how extensive and important narratives and metaphors are to the human experience of time and transformation. The narrative of journey appears frequently in health communications, and in personal accounts of illness. How it expresses temporal and qualitative dimensions of health and illness is illustrated in the following quote by Morand[94] 'Before I was diagnosed in 2010 I wondered why people talk about the breast cancer journey. It is because the treatment may go over a very long period of time and there are many ups and downs and unexpected experiences during that time' (p 1). As Reisfield and Wilson[56] acknowledge, the journey offers excellent cross-domain mapping and opportunity for discussions of goals, direction, and progress. The journey narrative may even be imbued with emotive qualities of heroism. Critiques have however, questioned the view of the ritual- mythic narrative of

the hero's journey as timeless and universal[95] arguing that 'each myth can have multiple interpretations, historically determined by socio-political circumstances and diversified when viewed through alternate cultural lenses'. This would support the need identified by Zarcadoolas, Pleasant and Greer,[2] for health communications to be culturally literate and targeted.

Practical implications

The discussion here provides compelling reasons why narrative and metaphor should be considered more centrally in the field of health literacy. The very means by which we think and the products of that thought are based on narrative and metaphor, and they pervade all aspects of health and wellbeing and our activities to improve them. And yet they are given relatively little consideration in the theory and practice of health literacy. Narrative and metaphorical competence in the multiple dimensions of health literacy will have a contributory role in health literacy.

Understanding the role of narrative and metaphor implies obligations on those involved in all aspects of health, including health communication and promotion, and professionals, educators and the media. Attention needs to be given to how lay people think about and communicate about health, and issues of context,diversity inclusion and marginalisation. Developing understanding and skills in narrative and metaphor as part of the cognitive and social skills underpinning health literacy applies to all stakeholders and not just lay people.

Ethical considerations commonly assume we should do no harm.[96] Narratives and metaphors may be effective and useful or may be ineffective or even harmful. They may

exclude, stigmatise, mislead or damage in other ways. We may question to what extent health communicators and promoters contribute to poor health literacy by not recognizing the role of narrative and metaphor. The absence of recognizing competence in these devices may underestimate the health literacy capabilities of lay people, and be contributory to situations where a person has high fundamental literacy but low health literacy.[2] Metaphor and narrative clearly have an important role in health contexts, but people's ability to engage with and use them personally and professionally needs to be considered more carefully. It should be a matter of concern that metaphors are generally used in health communications with little regard to people's ability to engage with them. The ability to seek out, comprehend, evaluate and use health information (health literacy) will take place within what could be described as an ecology of narrative and metaphor, or metaphor/narrative landscape.[49] Lack of consideration of these devices in how stakeholders in health and wellbeing think, make meaning and act, may be contributing to a disabling environment.

The role of narrative has already attracted attention in the health field. Narrative medicine as medicine practised with narrative competence,[20,21] has gained significant recognition and application.[97] Narrative is recognized to offer a powerful health communication tool [6] with potential to increase health literacy[98]. This significantly includes difficult areas such as mental health,[98] which is a priority area for health improvement.[99] It can be argued that for professionals, developing both metaphorical intelligence and narrative imagination/competence could be incorporated into the foundation and continuing professional development curricula. Similarly they could be included in education for health literacy.

Returning to the key message for those concerned with the improvement of health and wellbeing, that metaphor and narrative are vital to consider we should ask why both are important. As Hanne[1] notes, whilst work has been done independently on metaphor and narrative; the relationship between them and application to thinking in different disciplinary areas has received less attention. It is evident however, that the two devices are both important and interconnected. Metaphors appear within narrative, or can form the framework within which a narrative is contained or from which it unfolds. Their complex relationship to each other, to cognition and what flows from cognition has led Hanne[1] to describe them as elements of a binocular perspective on health.

Conclusion

If we accept that narrative and metaphor are important then it follows that it is worthwhile to consider them in health literacy activities to improve health and wellbeing, acknowledging their place in key dimensions of health literacy such as those identified by Zarcadoolas, Pleasant and Greer[2] (fundamental literacy, scientific literacy, cultural literacy and civic literacy). This will involve those working for health listening to the narratives and metaphors people use, and being critical and careful of the metaphors and narratives they employ in health discourse and communication. Effective communication needs to consider areas such as meaning and resonance with the target audience. We should consider current limitations in providing information and support in ways that fit with the way people think and operate in the world, and the fact these may be contributing to poor outcomes related to health literacy. It can be argued that the importance of narrative and metaphor in

shaping thought and action in relation to health and wellbeing make them worthy of moving to the centre stage in health literacy.

References

1. Hanne M. The binocular vision project: an introduction. Genre. 2011; 44 (3): 223-7.
2. Zarcadoolas C, Pleasant A, Greer D. Advancing health literacy – a framework for understanding and action. San Francisco: John Wiley & Sons Inc.; 2006.
3. Nutbeam D. Health promotion glossary [Internet]. Geneva: World Health Organisation; 1998 [cited 2015 Dec 23]. Available from: http://www.who.int/healthpromotion/about/HPR%20Glossary%201998.pdf.
4. Kickbusch I, Pelikan J, Apfel F, Tsouros A, editors. Health literacy the solid facts [Internet]. Copenhagen: World Health Organisation; 2013 [cited 2015 Dec 23]. Available from: http://www.euro.who.int/__data/assets/pdf_file/0008/190655/e96854.pdf.
5. HealthyPeople.gov [Internet]. Washington: United States Department of Health and Human Services; c2014 [Updated 2015 Dec 23; cited 2015 Dec 23]. Available from: https://www.healthypeople.gov/2020/topics-objectives/topic/health- communication-and-health-information-technology.
6. Osborne H. Health Literacy from A to Z: Practical Ways to Communicate Your Health Message. Sudbury: Jones and Bartlett Publishers; 2005.
7. Bruner J. Actual minds, possible worlds. Cambridge Massachusetts: Harvard University Press; 1986.
8. Bruner J. The narrative construction of reality. Critical Inquiry. 1991; 18:1-21.

9. Ortony A, editor. Metaphor and thought. Cambridge: Cambridge University Press; 1993.
10. Lakoff G, Johnson M. The metaphors we live by. Chicago: University of Chicago Press; 1980.
11. Lakoff G, Johnson M. Philosophy in the flesh: the embodied mind and its challenge to western thought. New York: Basic Books; 1999.
12. Lakoff G. The contemporary theory of metaphor In: Ortony A, editor. Metaphor and Thought. Cambridge: Cambridge University Press; 1993. p. 202-51.
13. Talley J. Metaphor, narrative and the promotion of public health. Genre. 2011: 44 (3): 405-23.
14. Littlemore J, Low G. Metaphoric competence and communicative language ability. Applied Linguistics. 2006; 27(2):268-94.
15. Botting N. Narrative as a tool for the assessment of linguistic and pragmatic impairments. Child Language Teaching and Therapy. 2002; 18 (1): 1-21.
16. Doiz A, Elizari C. Metaphoric competence and the acquisition of figurative vocabulary in foreign language learning. Estudios de Lingastica Inglesa Aplicada. 2013 Jan; 13: 47-82.
17. Low G, Low GD. On teaching metaphor. Applied Linguistics.1988; 9 (2): 125-47.
18. Littlemore J. The case for metaphoric intelligence: a reply. 2002 Jun [cited 2015 Jan 22]. In: ELT Newsletter [Internet]. [place unknown]: ELT Newsletter.com. Available from: http://www.eltnewsletter.com/back/June2002/art1012002.htm.
19. Nussbaum M. Cultivating humanity. Cambridge MA: Harvard University Press; 1997.
20. Charon R. Narrative medicine a model for empathy, reflection, profession, and trust. JAMA. 2001; 286 (15):1897-1902.

21. Charon R. Narrative and medicine. N Engl J Med. 2004; 350 (9): 862-4.
22. Higgins J. Language as a reflection of our social and physical world: what students can learn from metaphor. In Denham K, Lobeck A, editors. Language in the schools: integrating linguistic knowledge into K-12 teaching. New Jersey: Laurence Erlbaum Associates; 2005.p.160-71.
23. Bourke J. The story of pain. Oxford University Press; Oxford: 2014.
24. Semino E. Descriptions of pain, metaphor and embodied simulation. Metaphor and Symbol. 2010 ; 25 (4): 205-26.
25. Hide L, Bourke J, Mangion C. Perspectives on pain. Interdisciplinary Studies in the Long Nineteenth Century [Internet].2012 Dec 6 [cited 2015 Dec 30]; (15). Available from: http://www.19.bbk.ac.uk/articles/663/.
26. Butler D, Moseley L. Explain pain. 2nd ed. Adelaide: Noigroup Publications; 2013.
27. Melzack R. The McGill Pain Questionnaire: Major properties and scoring methods. Pain. 1975; 1: 277-99.
28. Harari P, Legge K. (2001), Psychology and Health. Oxford: Heinemann; 2001.
29. Zaltman G, Zaltman L. Marketing metaphoria: what deep metaphors reveal about the minds of consumers. Boston: Harvard Business School Press; 2008.
30. Campbell J. The hero with a thousand faces. Novarto; New World Library; 2012.
31. Brannigan E. Narrative comprehension and film. London; Routledge; 1992.
32. Craig Lefebvre R. Social marketing and social change: strategies for improving health, well-being and the environment. San Francisco: John Wiley & Sons; 2013.

33. Yu N. Metaphor from body and culture. In: Gibbs R, editor. The Cambridge Handbook of Metaphor and Thought. Cambridge: Cambridge University Press; 2008. p. 247-61.
34. Littlemore J, Metaphoric intelligence and foreign language learning. Humanising Language Teaching [Internet]. 2001 [cited 2015 Jan 22]; 3 (2): 1. Available from: http://www.hltmag.co.uk/mar01/mart1.htm.
35. Pollio H, Barlow J, Fine, H, Pollio, M. Psychology and the poetics of growth. New Jersey: Lawrence Erlbaum Associates; 1977.
36. Lakoff G, Nunez R. Where mathematics comes from: how the embodied mind brings mathematics into being. New York: Basic Books; 2000.
37. Slovic P, Finucane M, Peters E, MacGregor D. Risk as analysis and risk as feelings: some thoughts about affect, reason, risk, and rationality. Risk Analysis. 2004; 24 (2): 311-22.
38. Spiegelhalter D. Using speed of ageing and "microlives" to communicate the effects of lifetime habits and environment. BMJ. 2012; (345): 1-5.
39. Spiegelhalter D. Communicating risk. Risk & regulation. 2009; (18): 8-9.
40. Sloman S, Lagnado D, Causality in thought. Annu. Rev. Psychol. 2015; 66:223–47.
41. Abbott H P. Narrative and Emergent Behaviour. Poetics Today. 2008; 29 (2): 227–44.
42. Kaufman D, Keselman A, Patel V. Conceptual understanding in the domain of health. In: Vosniadou S, editor International Handbook of Research on Conceptual Change 2nd ed. New York: Routledge; 2013. p. 253-69.
43. Steen G, The contemporary theory of metaphor - now new and improved! Review of cognitive linguistics. 2011; 9 (1): 26-64.
44. Forceville C, Urios-Aparisi E. Multimodal metaphor. Berlin, Mouton de Gruyter; 2009.

45. Herman D. Cognitive narratology. In: Hühn P, Pier J, Schmid W, Schönert J, editors. The living handbook of narratology [Internet]. Hamburg: Hamburg University; 2013 [cited 2015 Dec 30]. Available from: http://www.lhn.uni-hamburg.de/.

46. Gibbs R. Why many concepts are metaphorical. Cognition.1996; 61(3): 309-19.

47. Johnson M. The body in the mind: the bodily basis of meaning, reason and imagination. Chicago: University of Chicago Press; 1987.

48. Semino E, Heywood J, Short M. Methodological problems in the analysis of metaphors in a corpus of conversations about cancer. Journal of Pragmatics. 2004; 36 (7): 1271-94.

49. Tompkins P, Lawley J. Embodied schema: the basis of embodied cognition [Internet]. London; The Developing Company; 2009 [cited 2015 Dec 23]. Available from: http://www.cleanlanguage.co.uk/articles/articles/245/1/Embodied-Schema-The-basis-of-Embodied-Cognition/Page1.html.

50. Gibbs R. Embodiment and cognitive science. Cambridge: Cambridge University Press; 2006.

51. Lakoff G. Women, fire, and dangerous things: what categories reveal about the mind .Chicago: University of Chicago Press; 1987.

52. Rohrer T. Image schemata in the brain. In: Hampe B, Grady J, editors. From perception to meaning: image schemas in cognitive linguistics. Berlin: Mouton de Gruyter; 2005.p. 165-96.

53. Schuster J, Beune E, Stronks K. Metaphorical constructions of hypertension among three ethnic groups in the Netherlands. Ethnicity and Health. 2011; 16(6): 583-600.

54. Ritscher R, Lincoln R, Grotzer T.A. Understanding density and pressure: How students' meaning-making impacts their transfer of causal models [Internet]. Cambridge MA: Harvard Graduate School of Education; 2003 [cited 2015 Dec 30]. Available from: http://isites.harvard.edu/fs/docs/icb.topic1117424.files/NARST03RitscherPap.Fin.pdf.

55. Health Pro [Internet]. New York: Remedy Health Media, LLC.; c2015 [cited 2015 Dec 30]. Available from: http://www.healthcentral.com/heart-disease/c/45112/60650/questions-dr

56. Reisfield G, Wilson G. Use of metaphor in the discourse on cancer. Journal of Clinical Oncology. 2004; 22 (19): 4024-7.

57. Banks W, Thompson S. The Mental Image of the Human Body: Implications of Physiological Mental Models of Our Understanding of Health and Illness. In: Scott Mio J. and Katz A. Metaphor: Implications and Applications. New Jersey: Mahwah; 1996. p. 99-126.

58. Butler D. The sensitive nervous system. Adelaide: Noigroup Publications; 2000.

59. Montgomery SL. The scientific voice. New York: Guilford Publications Inc.; 1996.

60. Stibbe A. Fighting, warfare and the discourse of cancer. South African Journal of Linguistics. 1997; 15 (2):65-70.

61. Stibbe A. The role of image systems in complementary medicine. Complementary Therapies in Medicine, 1998; 6(4):190-4.

62. BBC News [Internet]. London: BBC.Co.UK; c2015 [cited 2015 Jan 22]. Available from: http://www.bbc.co.uk/news/health-18393391.

63. NBC News [Internet]. Washington: NBC News.com, c2015 [cited 2015 Jan 22]. Available from:

http://www.nbcnews.com/storyline/ebola-virus-outbreak/liberia-fights-deadly-war-against-ebola-virus-n183431.

64. Sontag S. AIDS and its metaphors. London; Penguin: 1989.
65. Annas G. Reframing the debate on health care reform by replacing our metaphors. N Engl J Med. 1995 Mar 16; 332(11):744-7.
66. Khullar D. The trouble with medicines metaphors. 2014 Aug 7 [cited 2016 Jan 1]. In: The Atlantic [Internet]. Washington DC: The Atlantic Monthly Group, c2016. Available from: http://www.theatlantic.com/health/archive/2014/08/the-trouble-with-medicines-metaphors/374982/.
67. Murray M, Sivaraman S. Microbes & Metaphors Report [Internet] .2014 9cited 2016 Jan 1]. Available from: http://www.slideshare.net/SatyaSivaraman/microbes-metaphors-report.
68. Mattingley C. The machine-body as a contested metaphor. Genre. 2011; 44 (3): 363-80.
69. Barry C, Brescoll V, Brownell K, Schlesinger M. Obesity metaphors: how beliefs about the causes of obesity affect support for public policy. Milbank Quarterly. 2009; 87(1):7-47.
70. Frameworks institute [Internet]. Implications of the consumer frame for food and fitness. Washington DC: Frameworks Institute; 2007 [cited 2015 Jan 22]. Available from: http://www.frameworksinstitute.org/assets/files/food_and_fitness/implications_of_consumer_frame.pdf.

71. Bales S, Gilliam Jr F. Communications for social good. New York: The Foundation Center; 2004.
72. Carger E. Thinking in pictures: the deep metaphors that drive how politicians see health disparities. In: Robert Wood Johnson Foundation, Carger E, Westen D, editors. A new way to talk about the social determinants of health [Internet]. Princeton NJ: Robert Wood Johnson Foundation; 2010 [cited 2015 Jan 25] p.13-20. Available from: www.rwjf.org/files/research/vpmessageguide20101029.pdf.
73. McKinlay J. Epidemiological and political determinants of social policies regarding the public health. Soc Sci Med. 1979 Aug; 13A (5):541-58.
74. Thinkupstream.net [Internet]. Saskatoon: Upstream: Institute for a Healthy Society [cited 2016 Jan 1]. Available from: http://www.thinkupstream.net/about_upstream.
75. Manuel T, Gilliam Jr F. Framing healthy communities: strategic communications and the social determinants of health [Internet]. Washington DC: Frameworks Institute; 2008 [cited 2015 Jan 22]. Available from: http://www.frameworksinstitute.org/assets/files/food_and_fitness/social_determinants_of_health.pdf.
76. Frameworks institute [Internet]. Framing public issues. Washington DC: Frameworks Institute; 2002 [cited 2015 Jan 22]. Available from: http://www.frameworksinstitute.org/assets/files/PDF/FramingPublicIssuesfinal.pdf.
77. Glass T, McAtee J. Behavioral science at the crossroads in public health: Extending horizons, envisioning the future. Soc Sci Med. 2006; 62:1650–71.
78. Susser M, Susser E. Choosing a future for epidemiology: II. From black box to Chinese boxes and eco-epidemiology. Am J Public Health. 1996 May; 86 (5):674-7.

79. Kreiger N. Theories for social epidemiology in the 21st century: an ecosocial perspective. Int. J. Epidemiol. 2001; 30 (4): 668-77.

80. Coughlin S. Causal Inference and Scientific Paradigms in Epidemiology. Karachi: Bentham Books: 2010.

81. Dutta M. Communicating health: a culture centred approach. Cambridge: Polity Press; 2008.

82. Ibba M. Metaphors we are healed by: on the use of metaphors in medical language. In Alatis G, editor. Georgetown University Round Table on Languages and Linguistics. Washington DC: Georgetown University Press; 1991.p. 603-12.

83. Deignan A. Corpus linguistics and metaphor. In: Gibbs R, editor. The Cambridge Handbook of Metaphor and Thought. Cambridge: Cambridge University Press: 2008 p. 280-94.

84. Gwyn R. Communicating health and illness. London: Sage; 2002.

85. Littlemore J. The effect of cultural background on metaphor interpretation. Metaphor and symbol. 2003; 18 (4): 273-88.

86. Kovecses Z. Language, figurative thought, and cross cultural comparison. Metaphor and symbol. 2003; 18 (4): 311-20.

87. Halliday M, Martin J. Writing science: literacy and discursive power. London: Falmer; 1993.

88. World Health Organisation [Internet]. Geneva: World Health Organisation; c WHO 2016 [cited 2016 Jan 1]. Available from: http://www.who.int/mediacentre/factsheets/fs403/en/.

89. Banks I. Man manual. Yeovil: Haynes; 2002.

90. Campbell R, Longhurst R. Obsessive–compulsive disorder (OCD): Gendered metaphors, blogs and online forums. New Zealand Geographer. 2013; 69 (2): 83–93.

91. Stewart M. The road to pain reconceptualisation: do metaphors help or hinder the journey? Journal of the Physiotherapy Pain Association.2014; 36: 24-31.

92. Rein A. Navigating health care: why it's so hard and what can be done to make it easier for the average consumer [Internet]. Washington D.C./Princeton: Academy Health/Robert Wood Johnson Foundation; 2007 [cited 2015 Dec 30]. Available from: https://www.academyhealth.org/files/issues/NavigatingHealthCare.pdf.

93. Kickbusch I, Wait S, Maag D. Navigating Health: The Role of Health Literacy [Internet]. London: International Longevity Centre; 2005 [cited 2016 Jan 1]. Available from: http://www.ilcuk.org.uk/index.php/publications/publication_details/navigating_health_the_role_of_health_literacy.

94. Breast Cancer Network Australia. My journey information guide. Camberwell; Breast Cancer Network Australia; 2010. 221p.

95. Jenkins, H. Confessions of an Aka Fan Weblog [Internet]. 2014 April 7 [cited 2016 Jan 1]. Available from: http://henryjenkins.org/2014/04/why-do-humans-tell-the-stories-they-do-an-interview-with-lily-alexander-part-three.html#sthash.DwVeH8Ul.dpuf.

96. Beauchamp T, Childress J. Principles of biomedical ethics. 4th ed. New York : Oxford University Press; 1994.

97. Narrativemedicine.org [Internet].New York: The Programme in Narrative Medicine, [cited 2016 Jan 6]. Available from:

http://www.narrativemedicine.org/

98. Chang C. Increasing Mental Health Literacy via Narrative Advertising. Journal of Health Communication. 2008**;** 13:37–55.
99. The World Bank Group [Internet]. Washington DC: The World Bank Group; c2016 [cited 2016 Jan 6]. Available from: http://www.worldbank.org/en/topic/health/brief/mental-health.